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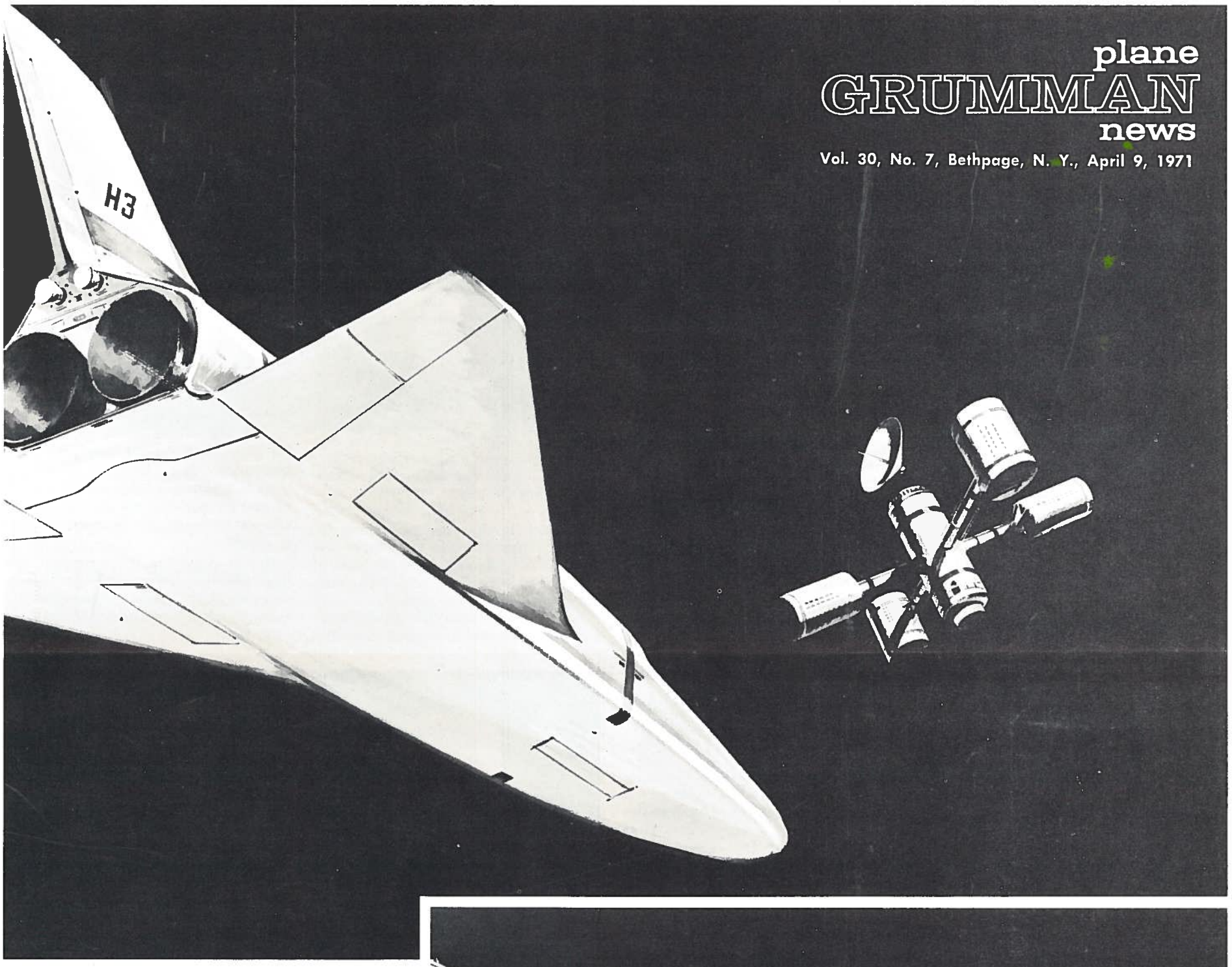
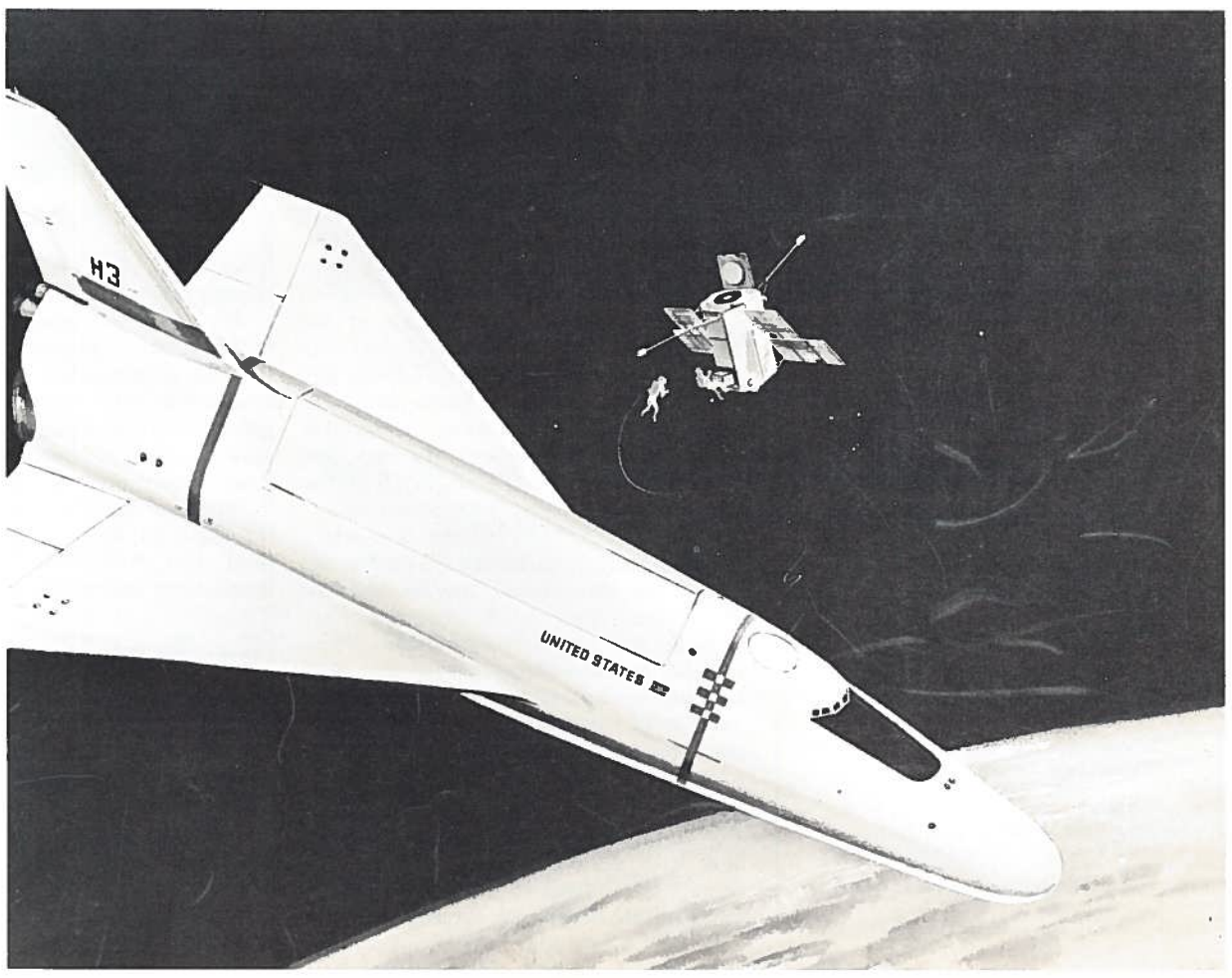


'Spaceplanes'

Little more than a decade ago, Man embarked on a most challenging and exciting mission — the conquest of space. And, by expanding his knowledge, broadening his technology, and directing immense energies, he has made his first probings into the limitless region beyond our world.

And what of the future? Some, like Senior Vice President Joe Gavin, see space flights with reuseable 'spaceplanes' (shown in these renderings by Bud Parke of Presentations Services) which could carry payloads for various scientific projects, assist in the repair of satellites, and transport people to orbiting space stations. For more, see page 2.



Gavin sees 'Spaceplane' as workhorse for many science projects

Senior Vice President Joe Gavin, director of Space Programs, last week answered a few questions for Plane News and revealed some thoughts on the future of space planning. The chat got off to an auspicious start with the word that Grumman/Boeing had just received "informal indications" that the National Aeronautics and Space Administration had made available an additional $1½ million for investigating in more depth the external hydrogen-tank-heat-sink booster configuration for the Space Shuttle.

Joe Gavin
Sees low-cost workhorse

Q: You suggested at the AIAA/NASA/AF Technology Conference in Phoenix last month that another name than "Shuttle" would create a better image in the public mind?

A: "Spaceplane" is more descriptive. "Shuttle" has some unfortunate connotations, especially for those of us who live in the New York area.

Q: You think "Spaceplane" might catch on?

A: It might. I hope so!

Q: What is ahead of us in the next decade of space activity? Space Station? Skylab? Unmanned spacecraft?

A: Skylab is still going—that program is funded for one Skylab, three visits by astronauts, using Command/Service Modules, three long-duration occupations in a year. The Space Station has been deferred until lessons from Skylab are learned, thus avoiding duplication of development effort.

But let me try to guess what is going to happen after the Apollo Program is completed in 1972:

The only manned activity will be the Skylab, probably launched in 1973. There will be a gap in manned missions between Skylab and the first orbital operations using the Shuttle (1978-79).

My immediate forecast is that the NASA budget will not be reduced and may even be slightly increased to reflect inflation. It appears possible that NASA can increase unmanned space operations to include the High Energy Astronomy Observatory and additional planetary probes and to complete the Viking (Mars) Mission Program within this level of funding. Development of the Shuttle can probably be fitted within this "balanced" budget.

It is important to note that the Shuttle offers the ONLY new launching system by either NASA or the Air Force.

Q. We hear about the various tasks "Spaceplane" can perform with comparative economy in its regularly scheduled orbital missions. Will you comment?

A: Well, it will be able to provide maintenance and repair of satellites in orbit, or to retrieve them and return them for repair on the ground. And it appears to offer substantially lower cost for the putting of payloads into orbit—this because of the reuseability factor over a long period.

Comments about the Shuttle being economical in the sense of paying for itself—I'm not sure this is a proper criterion for judging it. The number of flights may well be fewer than those contemplated by some studies.

However—the Shuttle (Spaceplane) will be very useful in its own right, and the proper measure of its economics will be whether it can be developed within a NASA budget which is balanced. I think it can.

So in the long run it seems to me that availability of the Shuttle would make possible both manned and unmanned operations in earth orbit that would not only be very useful but more economical than trying to continue with the Atlas-Titan-Saturn boosters. One can visualize development of regular standardized Spaceplane payloads serving such areas as astronomy, meteorology, communications. . . .

Q: Is the repair or servicing of satellites really a realistic function of "Spaceplane"?

A: Think of it as a successful "service call." It's certainly more efficient than launching a new satellite. And remember we are talking about complex and therefore versatile satellites—the next generation.

Q: Is that large and powerful Shuttle booster a polluter of the asmosphere? Or are we throwing you a curve on that question?

A: Not at all. The booster rocket uses ~~by-product is water. Therefore it is~~ hydrogen-oxygen for its fuel and its by-product is water. Therefore it's clean burning from the standpoint of pollution.

Death claims V.P. Ed Nezbeda, former Secretary Joe Stamm

Soft-spoken Ed Nezbeda, a Vice President of Grumman Aerospace since 1964, died of cancer March 24, just after reaching his 54th birthday. He had been ill for some time.

Nezbeda joined Grumman in 1940 as a tool designer and by 1955 had advanced to the rank of chief tool engineer. In that position he was responsible for design, fabrication, and installation of all Company tooling.

His next assignment was to take a year of study under a Sloan Fellowship at M.I.T., and as a result of the program he earned a Master of Science degree in Industrial Management in 1959. He held a Bachelor of Science degree in mechanical engineering from Newark College of Engineering (1939) and had, in 1954, received a certificate in industrial relations from Cornell University.

After the Sloan program he spent 18 months on special assignment in Internal Audit, Accounting, Purchasing, and Contracts, and when the Program Management department was established in 1960, he became deputy to Senior Vice President George Titterton.

From 1964 until illness limited his activities, he was director of Manufacturing, then director of Tool Engineering.

Ed Nezbeda was a member of the Nassau Board of the First National City Bank, the Society of Sloan Fellows, and the Unqua Corinthian Yacht Club. He lived at 248 Ocean Ave., Amityville. Surviving are his widow, Blanche, and children Allen Kurt and Karen Anne.

Corporate Secretary

Joe Stamm died March 23 at the age of 70. He was one of the founders of Grumman Aircraft Engineering Corporation and had held Permanent Number 13. He was Secretary of the Corporation and director of Purchases from 1930 until 1956, and Corporate Secretary until his retirement in the spring of 1966.

Stamm came to Grumman from Loening Aeronautical Engineering Corporation with the small group of men who launched a business in Baldwin, L. I., in 1930. He had been director of Purchasing at the Loening firm and was therefore familiar with aircraft work.

He was educated at St. Joseph's School and St. John's Preparatory School in Brooklyn, and he spent two years (1917-19) in the Engineer Corps of the Army, rising to battalion sergeant major. He belonged to the American Society of Corporate Secretaries.

Norman Egloff, now deputy director of Material Purchasing, recalls that he and Bill Robertson, now director of Contractor Relations, and one girl comprised Joe Stamm's Purchasing staff in the early '30s. "When we moved to Bethpage in 1937 we began to expand; took on a couple more girls," Egloff said. All clerical operations were done manually at that time. "He was a very neat man and very reserved. He always kept the most meticulous records in his copperplate kind of writing."

Joe Stamm leaves one son, Paul, and two sisters. Mrs. Stamm died in 1968. His home was on Highwood Road, Old Field South, Stony Brook, N. Y.

Ed Nezbeda

Joe Stamm

Ex-Service Men on membership drive

Bandman Al Kordula, who is acting commander of the Grumman Ex-Service Men's Club, wants all servicemen to know about the club's activities, carried on over the past 30 years. The members are friends to men in the service hospitals, taking gifts and entertainment to cheer them.

Club meetings are held in Plant 28 auditorium the first Monday of each month at 7:30 p.m. At the April 5 meeting plans were formulated for election of officers. All honorably discharged men of any branch of the Armed Services are invited to join, and applications are available at any Employee Services office. Or call Kordula, Ext. 87259, or Gene Wilson, Ext. 1639.

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Editor
Brian Masterson

Associate Editors
Claire Imrie
Al Wehren

Ads, Distribution
Dorothy Zeeb

Official Photographers
Presentations Services

Telephone
Plane News: 3293
Plane News from outside line:
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Spreading the word . . .

Shuttle report. **President Bill Zarkowsky helps spread the good news to Space Shuttle team members that Grumman will get addiitional $1½ million from NASA to continue Phase A study. (Photo by Fred Annette)**

Though "we've got a lot further to go," according to Vice President Larry Mead, the mood was bouncy when Mead, President Bill Zarkowsky, and Senior Vice President Joe Gavin visited with the Space Shuttle team at Plant 25 a couple of weeks ago. And why not? Mead, who's director of the Shuttle project, had arrived on the scene (and it was a crowded one, too) with Zarkowsky and Gavin to report an additional funding on the project of $1½ million from the National Aeronautics and Space Administration.

But he and Joe Gavin cautioned the Shuttle team that the competition is tough, and that "the next two-three months," said Mead, "will be critical." After McDonnell Douglas and North American Rockwell had been awarded Phase B Study contracts on the Space Shuttle last year, NASA awarded Grumman a $4 million Phase A contract to provide alternative approaches.

McDonnell and North American won $8 million awards for Phase B, received an additional $2 million earlier, and are expected to get about $750,000 more on their Phase B work.

Gavin, who heads up all Space Programs for Grumman, feels that we've "established a tremendous amount of respect among NASA leaders," but he also stressed that "I don't want to minimize how far we've got to go."

Putting it in perspective, Bill Zarkowsky commented that "that's all we've ever been used to—competition. We were out of the LM picture at one time—but honest and total dedication put us back in, and we came up from behind and won. It was the same with the F-14, the E-2, and any number of other programs.

"I have, and I'm sure you have, confidence in your ability. We're going to give it all we have . . . and we're going to win."

A little late, but happy anniversary, fellas . . .

Reaching one's Silver Anniversary with the Company deserves a photo in the paper. A few resist the camera, and Plane News respects their — shall we say—ideosyncrasies? But here's a fella whose photo was left out of the January anniverary list because he was home for three months with a heart ailment. Victor Kney is now better and back on the job, in Manufacturing Engineering T/M Management, Plant 2, and this is how he looks.

A number of lists have to be consulted to produce the anniversary roster published each month in Plane News. Inadvertently dropped off the March compilation of 20-year Grummanites was William H. Mueller, director of Technical Systems, Grumman Data Systems Center. After 20 years, that may hurt a little. Sorry, Bill.

Holidays and such . . .

The month of May brings spring fever and Decoration Day. This year May 30 falls on Sunday, and it will be observed on Monday, May 31.

The Plane News schedule goes like this: distribution, as usual, on the second and fourth Fridays of the month. This means April 9 and 23 and May 14 and 28. You'll see if you look closely a 13th week between April 23 and May 14.

Your favorite feature, the classified ads, will appear in the April 23 issue. Sorry there was no room this time.

'Zappers' give rave notices to first operational EA-6B

Rave notices are coming from the Naval Air Station at Whidbey Island where the Zappers (VAQ-129) are flying.

The Zappers are the first squadron to train in Grumman's new EA-6B, the electronic counter-measures aircraft now going through its initial paces and doing phenomenally well.

Cdr. Jack Blackwood leads the Fleet training squadron, and his reports of pilot training and aircraft maintenance are almost glowing testimonials. In a report to Capt. Ralph Huth, Commander of Tactical Electronic Warfare Wing 13, he says:

"Since Fleet acceptance the EA-6B has been involved in a high tempo of operational and maintenance training. . . . The first production model has accumulated over 70 flight hours. In about two weeks of February, P-6 logged over 30 hours. . Intensive instructor training has been accomplished and the first VAQ-132 flight crews have started flight training." (VAQ-132 will be the first operational squadron to deploy with the EA-6B next year.)

The skipper observed that "The assignment of pre-production aircraft (P-4) has been singularly the most important asset to the squadron's maintenance program." Grummanites helping The Zappers include Bob McNeil, field base manager; Jack Herman, assistant Program manager for Fleet Introduction; Pete Beresford, ECM officer; Gerry Markham, EA-6B field service coordinator; and Lenny Zambrowski, ECM systems engineer.

Roger Busch of Business Development says the extremely complex weapons system got to the Fleet on time because of the extensive ground tests done at Calverton by using the anechoic chamber and the SITS (Systems Integration Test Station). "That saved one-and-a-half to two years' time," says Busch. "Problems were caught on the ground, rather than in the air."

The program stress has been on reliability, and the first flights indicate the job was well done. And maintenance man-hours-per-flight are running well below predicted levels.

As Commander Blackwood sums it up, "With the arrival of the EA-6B, a new dimension has been added to the Fleet's airborne EW (Electronic Warfare) capability."

New arrival. **Out at Whidbey Island, Navy crews greet a flexible and powerful newcomer, Grumman's EA-6B, latest electronic warfare system. It'll go to the Fleet soon. (Navy photo)**

Set April 14 sign-up for Majorca flight

Sun-drenched, beautiful Spanish Majorca will be the destination for a charter flight package being offered in September through the Grumman Athletic Association. "It was great last year; I'm going again," GAA keeps hearing from enthusiastic travelers.

The itinerary calls for departure on Air France Thursday evening, September 16, returning Sunday, September 26. GAA has set Wednesday, April 14, 5:30 p.m., in Plant 28, as time and place for signing up. Names will be drawn to determine order of registration. You must be present in person, and prepared to make full payment at that time.

Cost of the "package," including round trip jet flight, twin-bedded room (double occupancy), three meals a day, all transfers and gratuities, is $330/person. Price is based on a full airplane (164 passengers). The hotel is modern, air-conditioned Cala Vinas overlooking Cala Vina Bay. Since this is a charter flight, regulations restrict the passenger list to Grumman employees, spouses, or dependent children living in same household, and Grumman retirees.

For further information on optional tours to the mainland or other details, call GAA, Ext. 2133 or 2269.

Customer relations: final payoff in Gulfstream operations

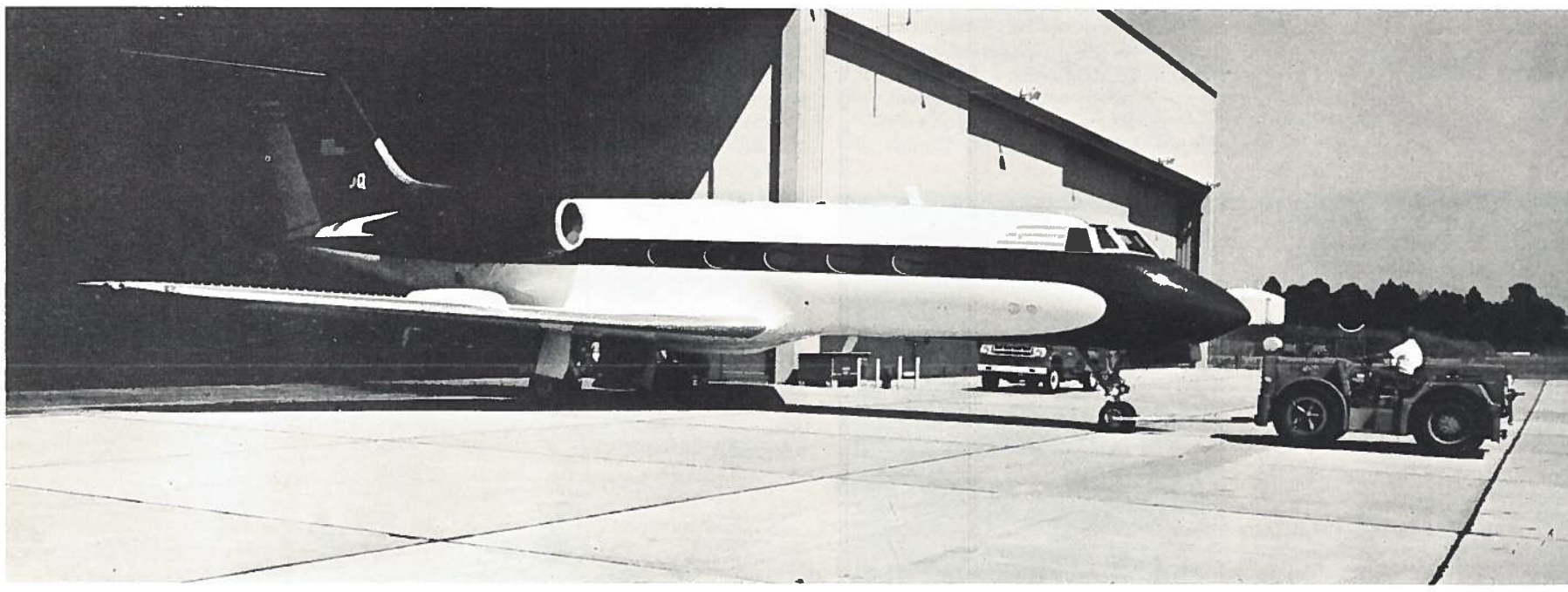
SAVANNAH, GA.—"We have about 290 Gulfstream operators, and I think it's safe to say they're satisfied."

That's the way Al Lemlein, general manager of the Savannah Commercial Center, looks at the heart of the job: turning out Gulfstream IIs and servicing both GIs and GIIs.

"Gulfstream sales and service aren't all that's going on here," Lemlein says. "We're looking into other potentially profitable areas, too, and have a couple of good contracts on the doorstep."

The "doorstep" right now means SEA-TAC, nine subway-type "people movers" for the Seattle-Tacoma airport in the State of Washington, and a contract to build engine nacelles for the Dassault Mini-Falcon. On the horizon may be jobs for Civil Systems, Ecosystems, and Grumman Allied Industries.

Although hit by the economic slump, Savannah is an action area looking for more and more action. But it is and will remain, for Grumman, an aircraft-oriented operation.



"The main job here will continue to be building and maintaining Gulfstreams, as I see it," says Jiggs Dreyfus, manager of Operations. "We're set up here to do all the assembly work. Not only that, we've developed a full crew-loading system, a modern aircraft assembly line: As the plane progresses down the line from small assembly all the way to final assembly, there is an orderly, step-by-step procedure for each 'station' (assembly point). Each station has the skilled people—riveters, electrical assemblers, controls technicians, sheet metal workers, and so on—to do that portion of the job. And each person has the hardware at hand to do the job, making for a smooth flowing and efficient operation."

'Selling just the beginning'

As things stand now, Grumman's Savannah operations can be viewed as a five-pointed star: G II production, Gulfstream Service Center, the Computerized Maintenance Program, the G I and G II Training School, and Pilot Training. Dick McHugh, assistant to Lemlein, says, "Our philosophy is that selling the Gulfstream is just the beginning. We have an ongoing job of providing full service for our customers, wherever they are. That's really where the final payoff is: customer relations. Not only do we have the finest corporate jet flying, but we back it up, fully—and our customers appreciate it."

That's been demonstrated by the messages of thanks and good will coming back from customers dealing with the Service Center, which is managed by Howard Sandbeck. The Center has been certified by the FAA (Federal Aviation Agency) for both minor and major repairs, and the FAA has just authorized an avionics repair facility at Savannah that will permit the repair, adjustment, and calibration of radio and navigational equipment.

"The primary aim of our Repair Station is to get the customer's aircraft into top service shape quickly," says Sandbeck, "so having a radio-repair service located right here will add an extra dimension of service. Instead of having to go to three or four different places to get a full check-out on his aircraft, a customer can come here and have the whole job done."

There's an extra advantage: too: When a GI or G II owner flies into the Savannah facility he's talking directly to the aircraft designer and manufacturer, the people who know his plane from nose to tail. In a very real sense, the design-production team is in the customer's corner, facilitating repairs and modifications, and lowering the customer's costs.

"That it's working can be seen by the increasing number of Gulfstreams coming in here," Sandbeck remarks. "It helps us—and not only in dollar business—because we get a chance to talk with the customer or the pilot, sometimes both, and get a feel for how the aircraft's doing and what little ways we can provide a little more; and that is important, because no two aircraft are the same and no two owners want the same things from a corporate aircraft. We like to think that each G I or II is custom-made to suit a specific owner, and helping him get the most out of his plane is what service means."

Because of that outlook, Sandbeck says that "It's not unusual for owners to call us directly at any hour of the day or night if unusual problems crop up. That's the way we want it. That's part of our business."

And the business, by the way, is world-wide, with G Is or IIs based in such places as Venezuela, Australia, The Netherlands, the United Kingdom, France, Canada, and Mexico.

Computerized maintenance

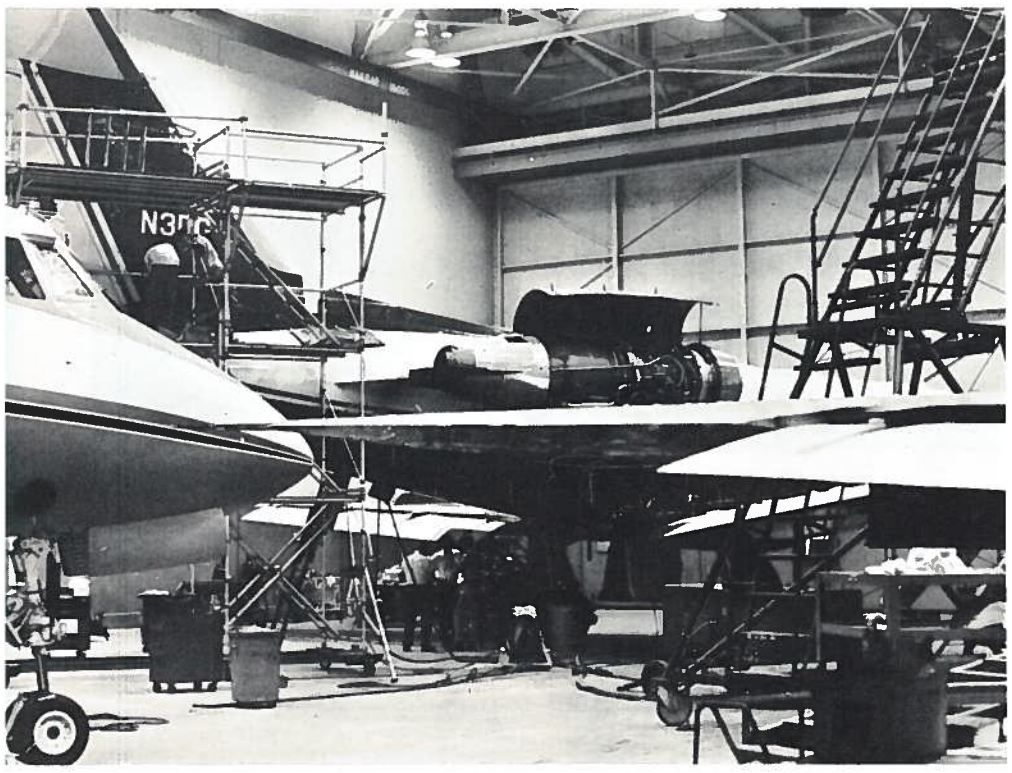
To aid in the maintenance of G Is and IIs, Savannah has a CMP (Computerized Maintenance Program) headed by Bill Whitehill. The G II CMP was set up in 1967, the one for G I last October. "Basically," says Whitehill, "it's a history and a record of what's coming up.

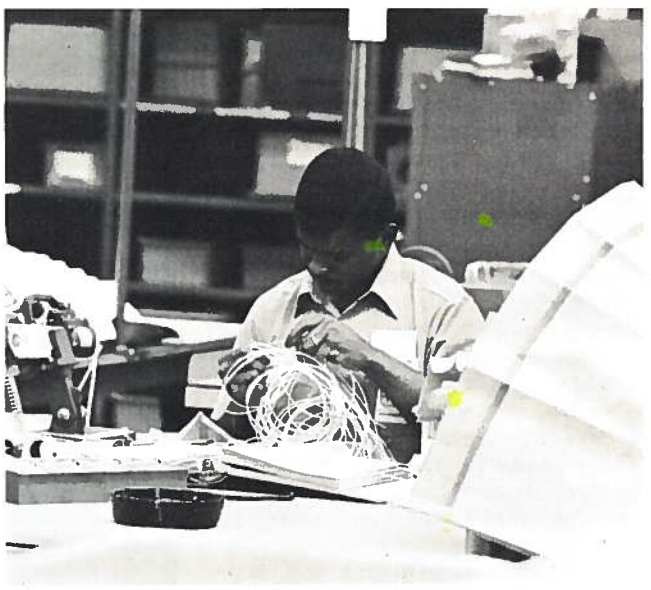
"We get the full record of each plane's maintenance history by checking the log book—and sometimes that takes eight or 10 days to compile. All that's fed into a computer, and it's kept current. We keep the customer advised through our 'greenie weenie,' a mailed reminder of what service is needed and when. By doing it that way, we have a handle on the 1,250 specific items for G I and the 1,400 for G II."

So, as of now, 198 Gulfstream Is and 65 G IIs are in the research library file, which soon will be enlarged by a spares stock inventory, now being programmed. That inventory will cover all aircraft, according to Whitehill.

The outcome of this accumulated data leads to a total maintenance system, one that provides: up-to-date engineering information, capability of eliminating "loser boxes" (lemons) from the spares system, full tie-in between Grumman and the Gulfstream fleet, on-site reps, and spares availability (based on reported reliability and use).

Supplementing these efforts are a Training School and pilot training done at the Savannah Center or, in some cases, at the Gulfstream owner's facility. The Training School has been in operation for a decade. Hal Brandtenborg, training coordinator, works with the





All photos by Cary Van Sickle

owners, pilots, and maintenance people —80 hours with the pilots, 23 days with Gulfstream maintenance crews.

"We help to familiarize the pilots with the aircraft systems," says Brandtenborg, "and they are kept up to date through our publications group. Every customer is furnished with a maintenance manual, primarily to help him in trouble-shooting. He has all the information he needs to remove and replace items.

"As for the pilots, many come in for refresher courses, to re-learn some of the out of the ordinary things that could, but rarely do, take place in flight. Each pilot, of course, has an FAA certificate to operate his Gulfstream. So far this year, two pilot-classes have been run. Business has been brisk."

Pilot training

But when you talk about the pilot, all of that activity falls in the domain of Dave Buxton, manager of Flight Operations. He is responsible for all pilot training from Savannah.

"We have to make sure that each customer has two pilots fully trained. That's the minimum. So these pilots are trained and know the Gulfstream systems before the plane is turned over to an owner who may have to fly the plane with [illegible] Federal Aviation Agency) man aboard. Then FAA sanctions the plane and pilot."

The aim, says Buxton, is to train each pilot "for Air Transport Rating, the highest of all the ratings." He mentions, too, that all of his flight training instructors have the ATR.

There is a lot going on in Savannah, then, though everyone connected with the operation is looking to the day when a lot more is going on. Naturally, increased G II production is a fond hope. (The plant turns out one G II every other month, though it used to push out three a month.) But, as Lemlein said, Gulfstream sales are improving and other contracts are coming in—engine nacelles for the Dassault Mini-Falcon and nine SEA-TAC vehicles—and the outlook for more business seems brighter: nation-wide indicators appear to show an expanding economy in the near future. When that up-swing occurs, Lemlein feels that Plant 55 will be ready for it:

"There's a real eagerness here that makes me feel I'm the leader who runs very fast to keep up with my people. They're a skilled gang, and this place is running at an amazing rate of efficiency. So the capability, the know-how, the drive, and the capacity—are here. I'd say we're ready for anything. We're just looking ahead."

Record membership participation draws 'thanks' from GAA staff

"For the first time in Company history," says Mike Cherry of the GAA (Grumman Athletic Association), "85 percent of the people in the Company subscribed. That's a record high!"

So Cherry, as director of the GAA membership drive, was happy . . . as were the 15 people who won Panasonic portable AM/FM radio and cassette tape recorders . . . and the 50 who won sets of Grumman glasses.

"The praise for the great response to the GAA drive doesn't belong to us in the GAA office," Cherry remarks. "The praise goes to all of our 'salesmen' and people in the various plants who helped push the drive. You can tell by the results—that 85 percent figure—that they worked hard. And all of us in GAA want to say 'Thanks' to them."

Some of "them" were on hand at Plant 28B for the drawing. In fact, except for the first draw, made by Vice President Tom Rozzi, the stubs were pulled out by "them." And they enjoyed it.

Winners of the tape recorders were:

Michael V. Maggiore and Edward Sturiale, Plant 1; John Nicoletta, Plant 5; Alexander Contostavlos, Plant 25; James Protus and Noe Arcas, Plant 35; Rudolph Winscher, Plant 7; Cosmo Strigaro and John Ohlmann, Plant 30; Henry Finnegan, Plant 33; Aaron Dean, Plant 3; Seaton Stenard, Plant 36; William Wypyski, Plant 34D; Thomas Vogt, Plant 6; and Robert Hess, Plant 83.

Winners of the Grumman glasses were:

Plant 1: Bill Melillo
Plant 2: Roger Dreher, Richard Herman, Robert Jack, Robert King, Bob Levitz, Charles Maciarz, George O'Connell, Jean Oakley, Lionel Osborne, Dominick Rullo
Plant 3: Anthony Chettuck, Bart Martorell
Plant 5: Thedore Gordan, Peter Ohlsen, John Otis, David Reichel, William Rose, Warren Rutan
Plant 7: William Rasmussen, Walter Smrek
Plant 11: Herbert Winkler
Plant 12: Pat Ceraso
Plant 14: Robert Barth, John Dittman
Plant 24: Henry Frank
Plant 25: Peter Beaton, Ramon Nardone, George Pinter, Robert Watson
Plant 27: Frank Illari
Plant 30: Bill Hartmann, Jack Kerrigan, Linda Scheu
Plant 34: Frances Celenski, Arthur Clemente, Michael Lyons, William Marson, Donald McAdams
Plant 36: Bernard Nasshan, Milton Weston
Plant 37: Daniel Winn
Plant 39: Frank Pullo
Plant 55: Dorothy Zipperer
Plant 83: Neil Warren, Tom Allen
Plant 84: Preston Burch, Frank Genco
Plant 87: Kay Whalen and
Plant 88: Phillip Ruisi.

Deciding the winners. **Although Vice President Tom Rozzi drew the first winning stub, the GAA drawing process was different this time: those who had helped with the membership drive got a chance to pull out a winning stub (Photo by Bob Settles)**

He cares!

Twenty-five miles on foot is a long haul, but Mark Darden did it for the March of Dimes. Darden is a Machine Parts Production inspector at Plant 56, in Glen Arm, Md. Reported Helen Malie of Plant 56 Personnel:

"Mark's method of training was to extend the period of time he played basketball, and this he brought up to three hours of constant play. When he had accomplished this, he knew he had the endurance to complete the Walk-A-Thon. He was one of more than 3,000 who were able to complete the 25-mile course."

Baltimore's first Walk-A-Thon to promote the fight against birth defects was held on Sunday, March 28. The March of Dimes, originated to fight polio, sponsored this fund-raising effort. Each participant had a sponsor, or sponsors, contributing a sum of money for each mile covered. Plant 56 employees were Darden's sponsors, pledging anywhere from four to 50 cents a mile, for a total of approximately $200. Reports Helen, "When all the returns are in, the March of Dimes expects the total to exceed $150,000."

Fill 'er up! . . But with what?

Wait! Before you fill up your outboard with some of the new no-lead or low-lead gasoline, listen to what Johnson Motors had to say to Bill Eliezer of Support Equipment, Plant 2. "Our technical staff recommends at this time that only regular or premium leaded gasoline be used for both old and new outboard motors.

"Current test results suggest that some of the new additives, such as phosphorous, used in place of lead, may be harmful to 2-cycle engines.

"Extensive research and testing with the new no-lead, low-lead fuels as to their effects on our engines will continue to receive top priority here at Johnson Motors. However, before recommending any of these new gasolines, more testing is required to determine their full effects on our products. . . ."

Bill is concerned: should he use leaded gasoline and possibly cause pollution, or use no-lead gas and possibly cause a solid waste problem when his engine goes on the fritz? Any suggestions?

Research lecture

Next guest lecturer on tap for Research series is Dr. W. Wayne Meinke, Chief, Analytical Chemistry Division, Institute for Materials Research, National Bureau of Standards. His topic: "Nuclear techniques in materials analysis." Meinke, who was been honored a number of times for his contributions to the field, will speak April 15, Conference Rooms 1A and 1B, Plant 25, starting at 4 p.m.

Dialing change

To improve dialing accuracy and to shorten repair intervals on circuit troubles, a dial tone to the Bethpage-Calverton tie lines has been added. Effective April 12, after dialing 7 **from** Calverton extensions, and 57 from all other Grumman extensions, there will be a dial tone when a circuit is available. You can then dial the appropriate extension number.

'Environment' sail

The anti-pollution group that calls itself the Environmental Technology Seminar is offering a Marine Environment Expedition in August. Studies on marine environments, Long Island to Rhode Island, and on water pollution will be combined with a seven-day all-expense cruise. For literature on the aims and activities of the Seminar and details of the projected week-long trip, August 15-22, call Bernard Kovit, associate director, Business Development, Ext. 9342.

CALENDAR of events

Notice of events for period Apr. 23 - May 14 should reach Plane News by **Tues., Apr. 13.**

Am. Radio Club: Wed., Apr. 21, WA2LQO shack on roof of Plt. 5, bus. meet. Emmett Goodman, Ext. 87125.

Amer. Inst. of Aero. & Astro.: Wed., Apr. 21, 6 p.m., Poly Inst. of Bklyn., Rte. 110, Farmingdale. R. Dixon of SPEAS on "Impact of Space Technology upon Commercial Flight." Mrs. J. Smart, 595-3086.

Amer. Prod. & Inven. Con. Soc. (APICS): Tues., Apr. 20, Holiday Inn, Plainview, 6:30 p.m. dinner. John Wolseifer of Sperry Gyro Co. on "Development of Mgmt. Info. Systems." Norm Heilweil, Ext. 1855.

Amer. Weld. Soc.: Mon., Apr. 12, 6 p.m., Bklyn. Poly Inst., Farmingdale, Rte. 110, joint SME-AWS mtg. Robert Witt & Dietrich Helms of GAC on "Electron Beam Weld-Metallurgy & Tool. Aspects." Buffet $4 at 6 p.m. at sch. cafe. John Platania, Ext. 2021.

Astronomical Soc.: Thurs., Apr. 22, 5 p.m., Plant 28, Rm. 2, general, new members welcome. Ed Andersen, Ext. 7044.

Aquatic Assoc.: Tues., Apr. 20, 9 p.m., Larkfield Country Club, gen. mtg. & soc. even., swim at 7:30, $2/per guest. Bob Benn, director GAA. J. Reeves, Ext. 7551.

Chess Club: Tues., 5 p.m., Plt. 3 Cafe. tourn., games. Alex Ikonnikow, Ext. 7592.

Coin Club: Wed., 12:05-12:50, Plt. 25 Vendor Conf. Rms. Ken Hale, Ext. 1936.

Dance Club: Every Tues., 8:30-10 p.m., St. Francis Cafe, reserv. not required, partnerships arranged. of Assisi, Northgate & Clay Pitts, Greenlawn, $2/session. Len Luke, Ext. 9682.

Eng. Mod. Soc.: Tues., Apr. 13, 7 p.m., Plt. 18, bus. & disc. Harvey Knopf, Ext. 7944.

Family Campers: Fri., Sat., & Sun., Apr. 23-25, Wildwood State Park, first campout of season. Bill Lord, Ext. 2914.

Fencing Club: Fri., 5 p.m., Plt. 30 Cafe, competitive fenc. & instr. Joe Campisi, Ext. 1134.

Human Factors Soc.: Tues., Apr. 20, 6:30 p.m., Metro, chap., United Cerebral Palsy of NYC, 339 E. 44 St. J. Ulman, W. Stigglitz, N. Eaton, M. Kearns, on "Human Factors in Auto. Design." $3/ buffet supper, $1.59 1st 4 hr. park, at Unique Gar., 330 E. 44 St. bet. 1st & 2nd ave. Jerry Fox, Ext. 9413.

Over Forty Club: Wed., Apr. 21 Amer. Legion Hall, 6 p.m., Charles Wagner Post, monthly mtg. F. Mistretta, Ext. 6427.

Pure Bred Dog Club: Mon., Apr. 12, 8:30 p.m., Plt. 18. Edith Farrell on "Obedience Training," demon., discussion - Q/A, guests welcome. Tom Williamsen, Ext. 3076.

Soc. of Aero. Matl. & Process Engg.: Tues., Apr. 13, King's Grant Motor Inn, Plainview, Metro & N.Y. Chap. H. Sanders, GAC, J. Lincoln Reliabond & Ray Krieger, Amer. Cyanamid, 5:30 p.m., mtg., happy hr., 6:30 p.m., dinner, 7:30 p.m., workshop. S. Westerback, Ext. 2725.

Soc. of Mfg. Engg.: Mon., Apr. 12, 6 p.m., buffet, 7:30 p.m., mtg., Grad. Ctr., Poly Inst. of Bklyn., Farmingdale. D. Helms & R. Witt, Grumman, "Electron Beam Weld." Spon. by SME, Chap. 88 & AWS, L.I. Sect. Dick Knoll, Ext. 2859.

Stamp Club: (Bethpage) First 3 Wed. of month, 5 p.m., Plt. 30 Cafe, swap., circuit bk. sales, auctions. Marty Harow, Ext. 9172.

Toastmaster Club (Huntington): Mon., Apr. 12, 8 p.m., Allstate Ins. Bldg., 201 Old Country Rd., Melville, educational, "Effective Communication." T. Campbell, Ext. 3157.

Train. Device Assoc.: Fri., Apr. 16, 6 p.m., dinner, Lauraine Murphy's rest., 1445 Northern Blvd., $7 incl. reg. fee. Ed duBois, Ext. 87418.

Wgt. Watchers: Every Tues., 4:45 - 6:45 p.m., Plt. 28 Audit., Mimi Ackerman, WW lecturer. Lee Badalamenti, Ext. 2171.

OBITUARIES

Plane News has received word that death has come to the Grumman personnel listed below. We extend sincere sympathy to relatives and friends.

FRANK J. LEAHY of Tooling & Methods Engineering, Plant 11, died March 30. He was 55 years old and had been with Grumman 19 years. He lived at 117 Henry Rd., North Merrick.

Hilbert 'Outstanding Bowler' but Aerospace spins pin upset

Although Ed Hilbert of Grumman won the "Outstanding Bowler" award at the 30th annual L.I. Industrial tournament for men, Aerospace UOP captured the L.A. (Jake) Swirbul championship trophy in one of the most stunning upsets in the history of the tourney. And it wasn't even close. Aerospace (formerly REF) easily outdistanced Grumman by 320 pins, and was nearly 600 sticks ahead of third-place AMF in the windup at Mid Isle Lanes in Hempstead.

There was a time when few teams could challenge Grumman, Republic, and Sperry—the big three of Industrial competition — for the Swirbul trophy. A few years ago LILCO dispelled some of that aura of invincibility and earned its first Industrial crown. Then last year Kollsman gained the top spot.

But Aerospace not only wrenched the crown from the top three, it shattered, for all time, the feeling that a "little" company had little chance in the competition. Aerospace, after grabbing a modest lead in the opening round, continued to add to that lead in the second and third sessions of the tournament, and going into the final round of the 12-game tourney, only Grumman in the 16-team field had any chance of overtaking the pacesetters.

When it was over, Aerospace had an 11,663 total—highest since 1952 in the tourney and fourth highest in the entire 30-year history of the classic. That, in itself, was surprising enough, but Aerospace also rolled a total of 1,098 pins over its entering (established) average for the 12 games, an **all-time** record in the Incentive division. Truly an amazing performance.

Grumman captain Ed Hilbert provided what little suspense there was in the final round. He and Steven Zgutowicz of Aerospace hooked up in a head-to-head duel for top honors in the Industrial competition. Although Zgutowicz took a slim lead into the final game, Ed punched out a 248 in the clutch to capture the "Outstanding Bowler" award with a 2,450 total—an average of 204 plus. Zgutowicz tallied 180 in the last game and wound up with 2,408, good for second place.

Other Grumman scorers were Jack Nielsen, 211-583; Bruce Karen, 525; Mike Greggo, 204-544; and Frank Tucholski, 209-538.

Solo star. **Ed Hilbert accepts 'Outstanding Bowler' trophy and warm congratulations from GAA head Bob Benn following tourney. (Photo by Bob Settles)**

Two plus two equals pin crown

When Frank Tucholski and Ed Hilbert joined up with Chin Thompson and Norma Frey in the Pan Am Mixed pin championship, it proved to be a winning combination. Tucholski registered games of 221, 210, and 201 to finish with 632 while leading the Grumman contingent to the doubles championship last Saturday night at Mid Isle Lanes.

Ed Hilbert hit 606, collecting the tourney's high game of 256 on the way, Chin fired 222-585, and Norma had 203-524. The foursome knocked down 2,347 pins in the three games, a mark that bypassed the former record of 2,246 that Grumman itself set back in 1965.

The Pan Am tourney, which brings together the top mixed doubles teams from 15 industrial concerns on the Island, was a hot one this year. Runner-up General Instrument finished right behind Grumman with a 2,292 total, good enough to shatter the old mark set by Grumman in '65.

Nite Owls bustin' out all over

Things went much better for Grumman in the opening round of the L.I. Industrial Nite Owl tourney at Mid Isle Lanes. Rudy Dunkley clicked off games of 224 and 234, totaling 642, to lead the Mohawks to a 2,965 total for the three games and a 221-pin lead over second-place AIL. Judge Locke's 201-242-613, Ernie Jenkins' 203-570; Earl Schroeder's 204-204-600, and Hank Kwiatkowski's 540 contributed to the Mohawk's total.

Grumman's other entry in the tourney, the Hellcats, didn't fare as well. Their 2,537 placed them sixth in the eight-team field. Highest score for the Hellcats was Marty Susa's 531.

Competition in the Nite Owl tourney resumes this Sunday, starting at 1:30 p.m. at Mid Isle.

Looking for repeat in girls' tourney

Does history repeat itself? When the Grumman girls hit the lanes, it usually does. They've been making a habit of winning their section of the L.I. Industrial bowling tournament, and this year they see no reason to change their pattern.

Grumman's defending champions, comprised his year of captain Chin Thompson, Bertha Siegl, Lynn Soers, and Norma Frey, will be on hand tomorrow night, Saturday, April 10, at Mid Isle Lanes in Hempstead. The action starts at 8 p.m. This year the Industrial tourney will run three rounds, with four games rolled in each session.

If turnabout is fair play, why not come down and root the girls in? For years they've been among the most vociferous backers of the men's varsity.

Stars see stars after collision with Police

Winning two games out of three is usually a pretty good percentage, but when the third one—the one you lose—is for the championship of the YMCA hoop tournament, that percentage isn't much help at all.

And the Grumman All Stars demise came so suddenly. Hadn't they romped over the Castle Night Club (well, we all know how **they** get in shape!) by an 87-53 score, then squeezed past the YMCA champs 81-80 on a last-second foul shot.

But when they ran into the Nassau Police in the final, the Grumman Stars came away bruised and battered—and the cops were quickly checked for unchecked sidearms and billy clubs. The final score was 92-45.

It was 42-33, with Grumman on the down side at half-time, and it got worse. After intermission, the Stars couldn't even find the hoop. They scored nine points in the third quarter, and their output dropped to three (yes, **three**) in the final stanza, with Frank Quarto and Bob Scully (15 and 11 points, respectively) the standouts for Grumman in an otherwise disastrous encounter.

Earlier, Quarto came through with two big points, both on fouls, as Grumman went ahead of the YMCA champs, the Blues, to win 81-80 in the last two seconds. Those two pressure-packed points put Frank's total at 21, while teammates Jim Cruthers and Scully netted 21 and 18, respectively.

Quarto also led the Stars' 87-53 decision over Castle in the tourney opener as he poured in 20 points. Scully contributed 18 and Cruthers furnished 16 more in the romp.

Near perfect season

With just three matches to go, the Grumman D pistol team is in a tie for first place with Pan Am in the L.I. Industrial pistol league. Latest to fall to the Ds was the Grumman C team. Al Berka's 286 led the D squad to its 1071-955 triumph, with help from Art McKee, 265; Greg Criscione, 261; and Jerry Minerva, 259.

Hemps bowl over Demons

Hemp: an Asiatic herb of tough fiber. Hemps: a bowling team in the Grumman Rockets league tough enough to set a high team record series, a lane-scorching 2,314. And they rolled it against top-of-the-heap I. C. Demons. The big men for the Hemps were Paul Havekotte and Dick Bereis with 625 and 557, respectively.

Rollers of the heavy roundball in the Brown league are spreading the wealth around, eschewing dynasties. One night Al Jowid rolled high single, 237, and Bill Luneburg had 559 for high series. Who captured those highs the week before? Phil Lipari with a 231 and Walt Matuza with a 574, somewhat short of Rick Hachemeister's 634 standard. Breaking into the 200s besides Jowid were Al Cohen, 228, Bob Sherman, 226, Frank Miglio, 223, Luneburg, 219, and Russ Clickner, 201. Atop the league are the Chiefs, who have Jowid and Cohen on their side. . . . Skip Hraban banged out two highs in Classic play with pin-scatterinig efforts of 224 and 219. Tom Maurici and Lou Levoy rolled third and fourth with 214 and 211. . . . The run at Dudonis' 719 and 268 marks stood challenged but unmarred by B. Hoehn's 599 and J. Otto's 224 in the Classified loop.

Hank Abrami and Rita Mathia led the keglers in Syosset Mixed. Abrami rolled a triple-deuce 22 and copped high series, 582. Rita turned in a 215-548—but was overshadowed by Monica Wojtyniak's 211-204-606. That 606 is league high.

The Woodpeckers maintain their dominance in Woodbury mixed, though the Kegs were rolling close. Betsy Reuper's 208 and 474 were distaff highs; Tom Bove spilled wood for a high 583 series. . . . Wednesday Night Mixed just that. For the gals, Pat Sabatelli's 170, Barbara Betts' 164, and Rose Goosney's 162 ruled, but in the last meeting the top femmes were Roseann Gabriel with 190 and 171, and Louise Appel with 177.

Gophers add to skein in L.I. rifle league

If "winning" isn't the name of the game, the Grumman Gophers have been on the wrong course for a long time—but they're not about to change directions, it seems. Just recently, the Gophers ran their L.I. Industrial Rifle League record to 9-0 with a 768-752 victory over IBM as George Hilton paced that win with 194. Hank Womble, 192, Dick Imgram, 191, and Al Burns, 191, completed the scoring.

It was the same outcome, although a different opponent, as the Gophers whisked past Pan Am, too, by 771-703. Womble closed with 196 in the .22 caliber rifle action, while Hilton, 194, Imgram, 193, and Bob Lang, 188, added to the winning total.

Things didn't go as well in the South Shore League. The Gophers bumped into DeMott Carmen American Legion Post and came away with a 747-761 defeat. Womble once again led the Gophers, this time with 195. Other scores included Imgram, 190; Ed Brandis, 189; Lang, 188; and Al Adler, 185.

On the move at Plant 1—
F-14 team steps up production

F-14 production flow is accelerating at Plant 1.

Last week, F-14s No. 2, 1-X, and 4 were lined up on the production floor. By the end of the week, No. 2 had moved into the adjacent test operations hangar.

There the aircraft will undergo "five or six days of intensive hydraulic system tests," says Joe Rodriguez, special assistant to the Program director. "We're taking the time to make sure of the integrity of the aircraft's systems so that when we ship the plane to Calverton it won't be a premature move.

"If there's one word that sums up our effort, I'd say it's 'methodical'—in fact, very methodical."

This is the way things are being done, with the "careful quickness" of engineers, technicians, and shop people who know their jobs and get progressively better. Perhaps most important of all, there isn't one of them who doesn't believe the F-14 is going to be the best air superiority fighter the Navy's ever had.

That view isn't confined to simply Plant 1 people, for there's a large contingent from Plant 7 on the job at Plant 1 and the two groups perform as one. Part of the idea in having Plant 7 people on temporary duty at Plant 1 is to make a team effort more effective: The people building the aircraft at 1 and those doing the flight test work on the floor of 7 get to understand each other—and the over-all job—better.

Subsystem tests

Right now, the Bethpage-Calverton force is working to do the engineering tests at Plane 1. Says Vinnie De Stefano, assistant plant manager at 7, "We have to run functional tests on the hydraulics, avionics, all of the subsystems. The fuel lab, engine runs, and assorted preflight checkouts will be done at Calverton. And then, of course, the bird flies."

At the center of activity is 1-X, what Joe Garappolo of instrumentation calls "the workhorse of the F-14 program. It's been built so that it can do just about anything we want it to do. Well, not literally . . .

"The point is, it'll be used for all sorts of tests—temperature survey, high-speed flights, flutter tests, pressure and gyro tests, and others. And with our two telemetering systems (analog and digital), real-time transmissions go to the ground station (ATS) at Calverton. We'll get the data. . . . lots of data."

The mission of 1-X is the same that No. 1 was.

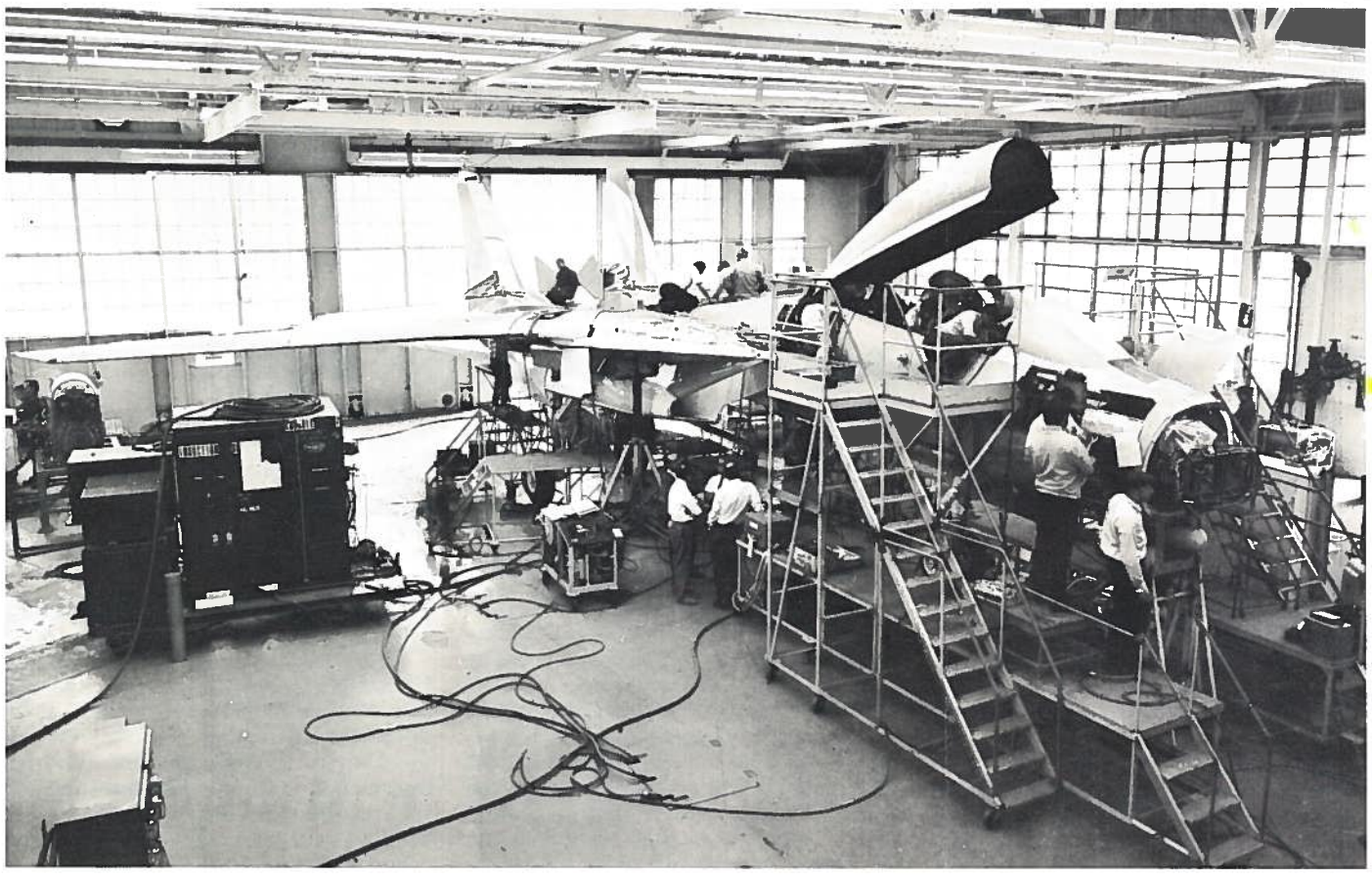
Aircraft No. 4, now being fabricated, is destined to go to Hughes for AWG-9 missile testing.

"We're beginning to benefit from the natural learning curve, getting more proficient as each aircraft is built," comments Ron Musgnug, assistant Plant 1 manager. "Things begin to become repetitive, get more automatic. Knowledge and experience decrease manufacturing work-flow time and save money. And it shows. For example, with the experience gained from aircraft One and Two, some brazing we did then can be done easier and better on the benches. It all helps."

Experience pays off

Manufacturing Program Manager Joe Cipp, who's seen — **closely** — both the negative side of scrambling for temporarily tough-to-find parts, and the positive side of watching lines being installed in record time, as examples—gets "the full, big picture" every day (and most nights). What he sees is real progress. He says that "The spirit's here. The guys are doing a hell of a good job. We'll catch up. We'll do it."

F-14 closeup. **Adm. Jack Arnold, Chief of Naval Material, inspects cockpit of F-14 under construction at Plant 1 with Vice President Mike Pelehach, while (at right) President Bill Zarkowsky shows same area on the Navy's new fighter to Rear Adm. Dan Weitzenfeld, Vice Commander of Naval Air Systems Command. Below is F-14 No. 2, now nearing completion at Plant 1. (Top, right photos by Fred Annette, one below by Harry Prodromides)**



Short shots

Carl Paladino had some mighty interested listeners a couple of weeks ago when he spoke about "Defense Contracting and the Aerospace Industry." Carl, who is Treasurer-Controller of Grumman Aerospace, spoke to the L.I. chapter of the National Association of Accountants.

Marcel Piry just finished a 25-page translation of the biography of Marcel Dassault, who heads Avions Marcel Dassault, the French firm that is an associate contractor on the Grumman-Boeing Space Shuttle team. Piry, who also works on the Shuttle, was assisted by Al Berthault of Advanced Space Programs in translating the famous aircraft designer's biography into English.

At Savannah, Grumman is manufacturing nacelles for Dassault's Mini-Falcons.